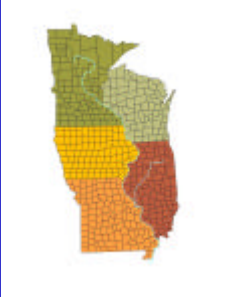


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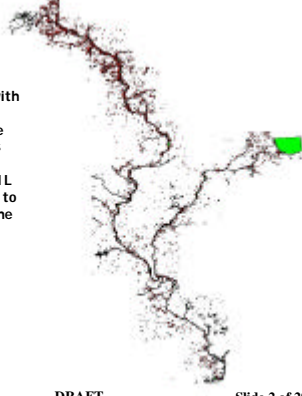
Assessment of Potential Impacts to State Listed Species



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Slide 1 of 29

Obtained Natural Heritage Databases with records of species in counties bordering the Mississippi and Illinois Rivers from the Twin Cities, MN to Cairo, IL and from Chicago, IL to the confluence with the Mississippi.
(Dates on data 1994-1997)



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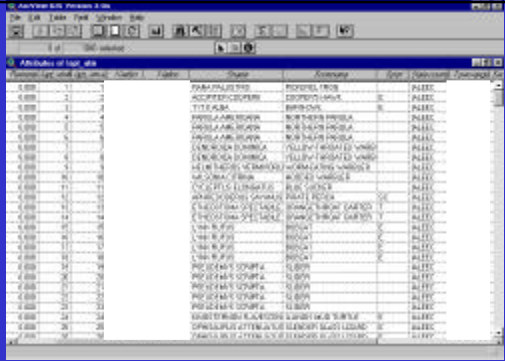
Slide 2 of 29

ASSESSMENT

- 8306 records in 5 databases.
 - Data obtained 1994-1997
- 17 - 45 ATTRIBUTE COLUMNS
 - (MN most detailed)
- Using GIS selected only those occurring within the floodplain (EMTC 1989).
- Reviewed for errors, attempted to update status, and apply habitats to species.

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Slide 3 of 29



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Slide 4 of 29

ASSESSMENT Complications

- Scientific and Common names not all consistent between states.
 - Plants
- FIPS code errors in IL database
 - especially Illinois River Counties
- State/Federal Status Columns Mixed
 - Wild base

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Slide 5 of 29

SITE SPECIFIC

- Site Specific Evaluation- Determined those species that have recorded occurrences within an approximate 2-mile radius of lock and dam sites.
- Potential impacts will be evaluated further when a recommended plan is formulated. This listing of species is included in Appendix G of the Site Specific Habitat Assessment, USACE 1998.

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Slide 6 of 29

Attachment 3

Potential site specific construction




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Slide 7 of 29

Listing of Species within 2 miles of locks and dams

Lock and Dam	Species	Status	Comments
Lock and Dam 11	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
Lock and Dam 12	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
Lock and Dam 13	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
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	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
Lock and Dam 14	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
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	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
Lock and Dam 15	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
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	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
Lock and Dam 16	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
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	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
Lock and Dam 17	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
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	<i>Parachanna obscura</i>	SL	Widespread
Lock and Dam 18	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
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	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
Lock and Dam 19	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
Lock and Dam 20	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread
	<i>Parachanna obscura</i>	SL	Widespread

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Slide 8 of 29

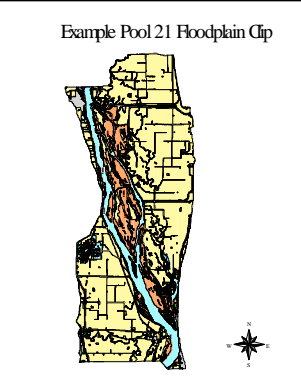
ASSESSMENT

- Systemic Assessment
 - Determined species occurring in floodplain.

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Slide 9 of 29

Example Pool 21 Floodplain Clip



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Slide 10 of 29

SYSTEMIC

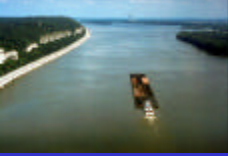
- Traffic
 - Erosion
 - fish
 - mussels
 - plants

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Slide 11 of 29

Assessment of Potential Erosion Impacts

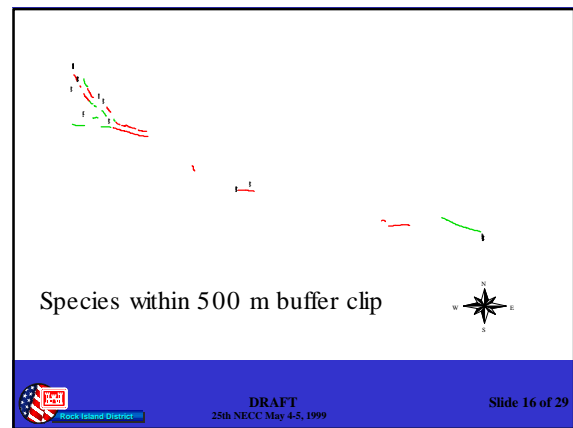
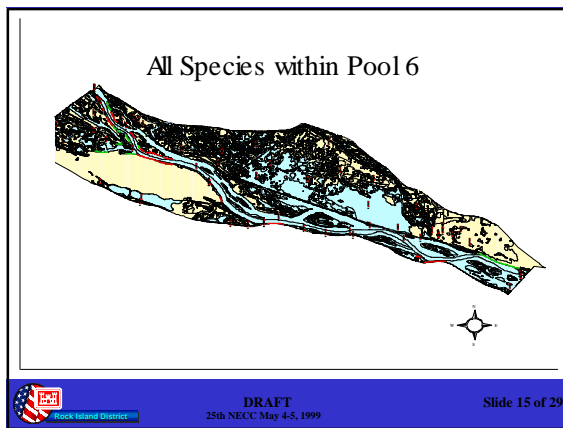
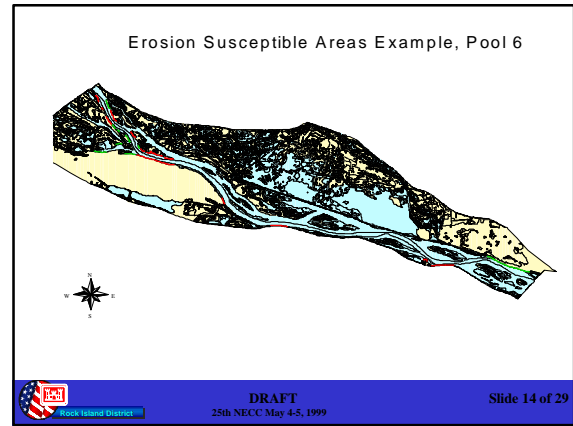
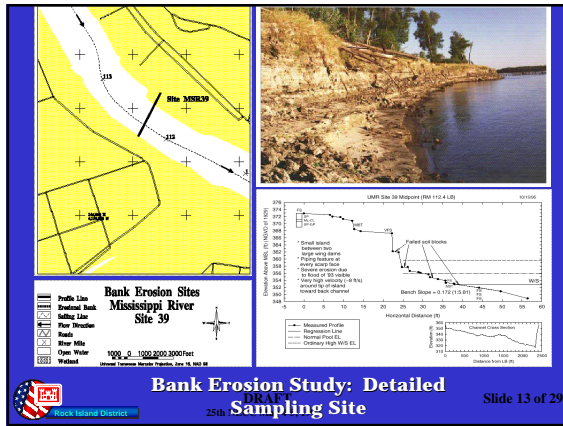
- Bank Erosion Report
 - identified areas possibly related bank erosion.
- Spatial Analysis
 - determined records occurring within a 500 m buffer of those with erosion risk.



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Slide 12 of 29

Attachment 3



Example Summary Table from Pool 9

COMMON NAME	COUNT	ERODE	SCIENTIFIC NAME	STATUS	COUNTY	LAST OBSERVED
Bald eagle	13	5	<i>Haliaeetus leucocephalus</i>	THR	HOUSTON	1992
Colonial waterbird nesting site	1	1			HOUSTON	1977
Puddingfish	6	5	<i>Polyodon spathula</i>	SPC	HOUSTON	1992
Pallid shiner	5	4	<i>Notropis anisus</i>	SPC	HOUSTON	1944
Racer	2	3	<i>Coluber constrictor</i>	SPC	HOUSTON	1958
Shownose sturgeon	2	2	<i>Scaphirhynchus platyrhynchus</i>	SPC	HOUSTON	1979

COMMON NAME	COUNT	ERODE	SCIENTIFIC NAME	STATUS	COUNTY	LAST OBSERVED
Low catamount	1	1	<i>Calamita arkansana</i>	SC	Vernon	7/15/11
Monkeyface	1	1	<i>Quadrula metanema</i>	THR	Vernon	1979
Rock pocketbook	3	2	<i>Acridens contragassus</i>	THR	Vernon	1979
Wartyback	10	3	<i>Quadrula robusta</i>	THR	Vernon	1979

Slide 17 of 29

Example Summary Tables Pool 17

COMMON NAME	COUNT	ERODE	SCIENTIFIC NAME	STATUS	COUNTY	LAST OBSERVED
Bald eagle	1	1	<i>Haliaeetus leucocephalus</i>	LE	MERCER	1982
Higgins eye peary mussel	4	1	<i>Lampsilis higginsii</i>	LE	146.0000	1988
Spectacle case mussel	5	1	<i>Cumberlandia monodonta</i>	LE	PIKE	1988

COMMON NAME	COUNT	ERODE	SCIENTIFIC NAME	STATUS	COUNTY	LAST OBSERVED
Blanding's turtle	1	1	<i>Emydoidea blandingii</i>		MUSCATINE	
Central mudminnow	1	1	<i>Umbra lima</i>		LOUISA	
Dwarf dandelion	2	1	<i>Potamogeton virginica</i>		LOUISA	
Higgins eye	4	1	<i>Lampsilis higginsii</i>		LOUISA	
Plains pocket mouse	1	1	<i>Perognathus flavescens</i>		MUSCATINE	

Slide 18 of 29

Attachment 3

Example Summary Table Pool 20

POOL 20 ILLINOIS						
COMMON NAME	COUNT	IR CODE	SCIENTIFIC NAME	STATUS	COUNTY	LAST OBSERVED
Great egret	2	1	<i>Caerules albus</i>	LT	HANCOCK	1991-06-05
Sheepnose mussel	1	1	<i>Ptychocheilus cyphus</i>	LE	HANCOCK	1992-10-17

POOL 20 MISSOURI						
COMMON NAME	COUNT	IR CODE	SCIENTIFIC NAME	STATUS	COUNTY	LAST OBSERVED
Bald eagle night roost	2	1	<i>Haliaeetus leucorhynchus</i> night roost	E	CLARK	1/7/85



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Slide 19 of 29

Buffer of eagle nests/heron rookeries

- Used resource inventory data from U.S. FWS
- Placed 200 m buffer on rookeries and nests.
 - (10 chain zone= 200m)
- Results
 - 2 records of heron/egret rookeries
 - (Pool 9 moderate, Pool 10 high)
 - No Eagle Nests



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Slide 20 of 29

SYSTEMIC

- Traffic
 - Erosion
 - Fish
 - mussels
 - plants



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Slide 21 of 29

State Listed Fish

Considered habitat preferences

Many species on list are not likely susceptible to navigation impacts.

Species such as Orangethroat darter (*Etheostoma spectabile*), Spotted sunfish (*Lepomis punctatus*), Banded Killfish (*Fundulus diaphanus*), etc. removed from consideration.



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Slide 22 of 29

State listed species selected for the assessment of commercial traffic-related impacts.

Scientific Name	Common Name
<i>Acipenser fulvescens</i>	Lake Sturgeon
<i>Scaphirhynchus albus</i>	Pallid Sturgeon
<i>Polyodon spathula</i>	Paddlefish
<i>Hiodon tergisus</i>	Mooneye
<i>Alosa alabamae</i>	Alabama shad
<i>Macrhybopsis gelida</i>	Sturgeon chub
<i>Macrhybopsis meeki</i>	Sicklefin chub
<i>Notropis amnis</i>	Pallid shiner
<i>Cyprinus elongatus</i>	Blue Sucker
<i>Moxostoma carinatum</i>	River redhorse
<i>Moxostoma valenciennesi</i>	Greater redhorse



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Slide 23 of 29

SYSTEMIC

- Determine degree of risk based upon the Ecological Risk Assessment.
- Most species either modeled in previous study or have similar species that were modeled.
- Not yet complete



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Slide 24 of 29

SYSTEMIC

- Traffic
 - Erosion
 - Fish
 - Mussels
 - Plants

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Slide 25 of 29

SYSTEMIC

- Mussels/Aquatic Plants
- Based on risk assessment
- Very few aquatic plants. Majority wetland, forest species.

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Slide 26 of 29

Mussels found in databases

Name	IA	IL	MN	MO	WI
<i>Actinonaias icamentaria</i> (Mucket Mussel)		Endangered	Threatened		
<i>Alvimondonta uerlei</i> (Sinnerchell Mussel)					Threatened
<i>Accodens confusus</i> (Rock-Pocketbook Mussel)			Endangered	Rare	Threatened
<i>Cumberlunda monodonta</i> (Socacle Case Mussel)	Endangered	Endangered			
<i>Cardissaria suberecta</i> (Banded Washburn Mussel)			Threatened		Endangered
<i>Ellicornia lineolata</i> (Butterfly Mussel)		Threatened	Threatened		Endangered
<i>Ellostia crassidens crassidens</i> (Blackchin Ear Mussel)			Endangered	Endangered	Endangered
<i>Planorbis planorbis</i> (Planorbis Mussel)		Threatened			
<i>Eccoloma infans</i> (Snuffbox Mussel)			Threatened	Rare	
<i>Caerensia alvina</i> (Pineapple Mussel)		Threatened	Endangered	Endangered	Endangered
<i>Lamproloma alvina</i> (Pink Mussel)				Endangered	
<i>Lamproloma lineata</i> (Herring Eye Mussel)	Endangered	Endangered	Endangered	Endangered	Endangered
<i>Lamproloma lineata</i> (Yellow Sandshell Mussel)			Endangered		
<i>Lamproloma costata</i> (Faded Shell Mussel)			Normal	Common	
<i>Lamproloma lineata</i> (Scaleshell Mussel)				Rare	
<i>Lamproloma lineata</i> (Black Sandshell Mussel)				Special	Common
<i>Platyloma carvius</i> (Shannon Mussel)	Endangered		Endangered	Rare	
<i>Platyloma lineata</i> (Round Plate)					
<i>Platyloma lineata</i> (Flat Pocketbook Mussel)		Endangered		Endangered	
<i>Quadrula fragosa</i> (Winged Mucket Mussel)					Endangered
<i>Quadrula lineata</i> (Mucket Mussel)			Threatened		Threatened
<i>Quadrula lineata</i> (Washburn Mussel)		Rare	Endangered	Rare	Threatened
<i>Simonsiana lineata</i> (Salamander Mussel)			Threatened	Endangered	Threatened
<i>Tahoniella ummunda</i> (Piddock Mussel)			Threatened		

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Slide 27 of 29

Preliminary Results

- Majority of terrestrial impacts restricted to construction areas.
- Aquatic species need a closer look and more work to wrap up the assessment.

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Slide 28 of 29

Completion of Assessment

- Complete review, screening
- Finish assessment detail with fish, mussels, and plants
- Coordinate w/ States
- Determine changes

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Slide 29 of 29